

Good roads leading to market would save the farmer in time, wear and tear of wagon and team, etc., as much as he could make from several acres of land to say nothing of the comfort and pleasure in riding over good roads. In order to have good roads there should be good overseers and good tools to work with.—*Mountain Grove Prospect*.

The question of good roads is attracting considerable attention just now, and deserves all the attention it receives. Missouri needs better highways. The condition of many county roads in this state during six months of each year is a disgrace to any civilization. Every good citizen should join in the movement for better dirt roads and more macadamized ones.—*Columbia Herald*.

The sentiment in favor of better roads is growing every day. One gentleman says he will give \$100 towards building a rock road from the public square west to Grand river bridge at Wright's mill, while another has given it out that he will donate \$3,000 for the extension of such road to Goshen City. May the agitation of this important question continue until something is accomplished.—*Princeton Telegraph*.

The condition of our roads at present is such as to render them well nigh impassable. Parties who have traveled over the road to the county seat this week say that the mud is up to the hubs of a vehicle in many places, and a ride to Fayette now is an undertaking to be dreaded by everyone. No better argument could be adduced in favor of rock roads than the present condition of our county roads.—*Glasgow Missourian*.

Monroe people are moving forward in the road matter. Paris raised \$3,200 for roads, and now offers \$2,200 of it to improve the road for which the most money is raised outside the city, and \$1,000 to the road having the next highest subscription. The people outside have taken hold of this matter in earnest. They had a great mass meeting and resolved that the time had come to make solid roads. Shelby and surrounding country must look out for their laurels.—*Shelby Democrat*.

Poverty is illustrated by the condition of the roads and the farms that bound them; by unkempt horses, delapidated wagons, broken harness, and a ragged, half-dressed man. Success waits upon the man who works his land for that which feeds his stock, when every steer carries to market a ton of hay in the shape of beef, and fifty or more bushels of corn; when every colt or filly, every hog or sheep does measurably the same, and when butter by the ton will represent train loads of hay and grass, and oats and corn and other stuff. We must learn to set our crops, so as that in marketing they will cost the least money. Help at home doesn't cost half as much as it does on the road or on the train.—*Rural World*.

The most important question to the farmers of this portion of Missouri to-day is better roads. At this season of the year when wood is selling for \$6 or \$7 a cord, hay, corn, eggs, butter and all other products of the farm are bringing the highest figures during the year, it is almost impossible to reach the market, although you live only a few miles from town. A good system of roads throughout a county like Audrain is to-day of more importance than railroads. A temporary organization was formed in Mexico not long since for road improvement, and we trust this matter will not be lost sight of.—*Mexico Ledger*.

Some people seem to think it would cost two to three thousand dollars a mile to make a gravel road. The one from Monroe City to Warren only cost \$800 per mile. It is true, \$2,000 per mile can be used perhaps advantageously, but \$10,000 would make a solid road between here and Shelbyville. Let specifications be made out, bids be contracted for, and the contracts let by the mile, and we have no doubt that \$10,000 would make as good a road as we need. A few thousand more would make it more permanent. If we cannot have a free road which is most desirable, let us organize a company and have a toll road. Some kind of a highway passable at all seasons is demanded.—*Shelby Democrat*.

Don't you think that the condition of the roads in Howard county justifies turn-pikes? People would gladly pay toll to get to town where they could dispose of their perishable produce. We doubt not that within a few miles of Fayette there are dozens of farmers who have corn, wheat, hay, corn, wheat, potatoes, cabbage, apples, eggs and butter that they would gladly market while prices are so good, and the citizens of Fayette calling so lustily for such articles, at \$2 for wood, hay \$10 and \$12 per ton, corn \$2.10 per barrel, wheat 80 cents, butter 30 cents, etc., etc. But, alas, they cannot pass over the roads. Howard county citizens will lose enough within a few weeks to pay one year's assessment to build rock roads. Is it not true?—*Howard County Advertiser*.

The Richmond Republican in speaking of building better roads, a matter that is being considerably agitated in Ray county, as it is quite generally everywhere, says that it is reliably informed that a first-class rock crusher may be bought for \$800, and that a ten-horse power threshing machine will furnish ample power to run it. With plenty of rock and cheap fuel it would seem that here was a plan worthy of trial. Many pieces of public highway only need proper grading to make very fair roads. The sections of road here and there that usually get so bad might be properly graded, and then given a good overlay of macadam. The rock portions of the road could be gradually added to as means and opportunity would permit.

A citizen of Saline county writes as follows to the Marshall Progress on the subject of rock roads:

"In a recent trip to my old home in Fayette county, Ohio, I was struck with the excellent roads which have been built in the last 27 years. There are only two mud roads in the country, all the rest are turnpiked and all free.

"They are made by the two-mile assessment plan; that is, the land on either side of the road is taxed to pay for it. The county court appoints three commissioners to levy the tax which is as high as \$2 and low as 5 cents per acre. This is called the two-mile system. They have what is called the one-mile system, which is similar to the two-mile system.

"I then went to Greene county where they have the one-mile system with this difference: They have special legislation for the county. The land on each side of said road pays two-thirds of cost of construction and the county pays one-third.

"In Fayette, Madison and Pickaway, they have gravel near at hand, and the cost is only about \$1,600 to \$2,000 per mile; whilst in Greene they have no gravel, but have to break the rock; they put about eight inches of rock on the road and then fill it in with sand, which makes a fine road and a better one than the gravel. This road costs about \$2,000 to \$2,400 per mile.

"This tax is levied and bonds issued and sold at par, running one, two and three years.

"The grading of roads cost about \$800 per mile, three feet high in center. The grade is about fifteen feet wide at the top and covered with thirteen inches of gravel thirteen feet wide, or eight inches of broken rock with sand same width. This width enables vehicles of all kinds to pass with ease. In Greene county they have to haul their rock from one hundred yards to eight and ten miles, and I think Saline county could build her roads as cheap. This would give employment to a great many farmers in the summer after their harvest is over. Most of the roads in Ohio are built by the farmers near the road. The increase of value of land on turnpikes is from \$5 to \$10 per acre. The capacity for ordinary team is about 3,000 pounds on dirt road and about 5,000 pounds on turnpike, that is when dirt roads are in good order."

DIRT ROADS—HINTS HOW TO CONSTRUCT THEM IN THE BEST MANNER.

By this term is meant those roads which are formed of the natural soil found in the line of the roadway. They are so common as to be almost our only roads outside of town and city limits, and will for many years be used largely in country districts, and especially on the lines of cross roads which connect the main highways. Dirt roads at their best are greatly inferior to macadam and Telford roads essential of a good highway; in durability, cost of maintenance, drainage, attractive qualities, and in many locations, in point of economy also. But the dirt road is here, and the public hand must be directed to its treatment. The first and most important thing necessary for the maintenance of a dirt road may be stated in a single word—drainage. It is the one thing that can neither be dispensed with or neglected. Most dirt is soluble, and is easily displaced under the softening influence of rain, and this is hastened in the dirt roads by the passing of heavy wagons over the wet surface. On every mile of roadway within the United States there falls each year an average of 27,000 tons of water—a heavy, limpid fluid, always directing itself to the nearest outlet and seeking the lowest level. Water is hard to confine and easy to release, and yet, through sheer neglect of the simplest principles of drainage, water is the most active destroyer of our country roads.

In providing for the drainage of a dirt road we should first consider the material of which the roadway is composed. If a heavy, viscous clay predominates, the ordinary side-ditches should be of good depth, and will even then, in many cases, be inadequate for thorough drainage without the addition of a center drain running midway between, and parallel with, the side ditches. The center drain should of course be filled with loose irregular boulders, cobble stones, broken bricks, or similar filling, covering a line of tiles or fascines at the bottom, and should be connected with the side ditches by cross drains carrying the water outward from the center drain at proper intervals along the length of the roadway. Center drains, though often greatly needed for the improvement of country roads, are not in common use. They add somewhat to the cost of the roadway, but in most cases considerably more to its value, and should be employed in all situations where sand or gravel cannot be had to relieve the heaviness and water holding properties of the clay. If gravel, sand or other porous material can be conveniently or cheaply obtained, the center and cross drains may often be dispensed with by mixing the gravel or sand in plentiful quantities with the clay roadway, so as to insure as nearly as possible a porous and self draining surface layer, which should not be less than ten inches in depth, should be laid on the rounded or sloped subsoil so as to insure easy drainage into the side ditches.

In locations where the prevailing material is of a loose, sandy nature, the difficulties of drainage are more easily overcome, and side ditches, if found necessary at all, may be made of moderate depth and left open, without incurring the risk and dangers of travel that prevail where the deeper open ditches are used for draining heavier soils. But, on the other hand, the light and shifting nature of sandy road material destroys its value as a surface layer for an earth roadway, and its deficiency in this respect is most easily remedied by the addition of a stronger and more tenacious substance, such as stiff clay. When mixed with sand in proper proportions (which in each case depend upon the nature of the clay and sand used, and which can best be determined by experiment) this composition affords many advantages which make it superior to a roadway composed of either sand or clay when used alone. The sand tends to quicken the drainage and to destroy the sticky, tenacious qualities of the clay, while the clay supplies quality of cohesion in the substance of the road service, counteracting the shifting qualities of the sand and making the roadway more easily packed and rolled, and more likely to retain its proper grade and slope.—*I. B. Potter in the Century*.

WHAT GOOD ROADS WOULD MEAN.

They would make it possible for the farmers to take advantage promptly of the highest market, no matter at what season of the year.

They would save him days and weeks of time which he wastes every year wallowing through the disgusting mire of dirt roads.

They would reduce to a minimum the wear and tear on wagons and carriages.

They would lessen the expense in keeping horses in working order, and vastly less horses would be required in the county to perform the farmer's work.

They would require less expense to keep them in repair than do the dirt roads.

They would make it easier for a team to pull several tons over their smooth surface than to drag a wagon through the mud.

They would afford ready communication with the outside world at all times of the year.

They would spare the farmer many vexatious and nervous strains.

They would practically shorten the distance to the local market.

They would increase the demand for country and suburban property.

They would be free from dirt in summer and mud and ruts in fall, winter and spring.

They would bring every farming community into closer social relations.

They would make an evening's drive a pleasure in stead of a vexation, as it is now.

They would do away with the absurd poll-tax and supervisor system in places where it is still in use.

They would be, in short, the best possible investment to the taxpayer if built and cared for by the national government and paid for by a national tax.

All these they would do, unless experience goes for naught.—*Rural World*.

Good roads—roads which would be passable in January, February and March—would be worth at least one cent per mile for each hundred pounds carried over them more than they are now.

Farmers, it would be cash in your pockets to be able to sell your products at the market prices during these months, instead of selling sooner, or waiting for fine weather.

This is a subject that the County Alliance, the Sub-alliance, the debating societies, and every body ought to take up and agitate. If as much were to be said about the condition of our county roads as is said about exorbitant railroad freight rates, a great deal more benefit would be derived.

Figure on this for yourself, and then agitate the question. Don't let another year pass without improvements in our roads.—*Linneus Bulletin*.

Hon. J. L. Erwin, of Fulton, addressed a small but appreciative audience at Miller's Opera House last Friday night on the subject of "Roads." He advocates the contract system, a state department, government assistance; instead of appropriating millions for rivers and harbors and railroads, that it be put on the dirt roads over which nine-tenth of the traffic of the country goes. Many other excellent suggestions were made. At the close of his address the Daviess Co. Road Improvement Society was organized with about twenty members and the following officers: President, D. L. Kost; Vice-President, Holmes Cravens; Secretary, Wes. L. Robertson; Treasurer, J. P. O. Givens. The society will hold its first meeting next Monday at 2 p. m. at the court house and it is requested that all persons in the county interested in the improvement of our roads meet with us and become members of the society. Hon. J. W. Alexander has been requested to address the meeting, Monday, on "How We Can Improve Our Roads Under the Present Law." After a vote of thanks to Mr. Erwin the meeting adjourned.—*Gallatin Democrat*.

VALUE OF GOOD ROADS.

How few realize the large element which transportation makes in the cost of every supply, and how much it has to do with the value of every commodity for sale.

Bad roads force people to live in cities: good roads tend to take them out into the country. This observation reveals its force perhaps more strikingly when read in view of the facts of railroad development, to which the especial attention of the American people has been given during the past forty years. The railroads have centralized the population in the cities and larger towns, and arranged them along their lines of communication. Now what is needed is an equal development of carriage roads to broaden the areas of population and to relieve this congestion.

Railroads need better carriage roads for feeders; farmers need them for access to the railroads and to the cities; manufacturers need them for access to less populous areas and for lower rents and for less cost of portage and transportation; merchants need them as an element in the cheapening of their wares; the people need them for the reduction of the expense of satisfying their wants and for the efficient distribution of their activities.

All men work and plan after supplying their own and the immediate needs of their families, to leave a good inheritance to their children. All good citizens take into their plans of public expenditure the leaving of inheritance can we leave to our successors than good roads—roads that can be preserved and used at little expense and that endure both as monuments and as investments during the years and centuries to come?—*A. A. Pope in the Forum*.

An excellent idea is advanced by the Kansas City Star on road building. Audrain is about the leading county in other respects, why not build the first ten miles of county road for the others to pattern by, as the Star suggests below:

The proceedings of the Road Improvement Convention, held in Springfield, Ill., are not particularly cheerful reading for the friends of better highways. Statements were made showing that the State of Illinois had expended fifty-six million dollars on the common roads of the county without perceptible improvement, and the machinery for carrying on the ancient and useless system of "working the roads" costs the taxpayers of Illinois \$850,000 per annum. Missouri will probably be obliged to solve this road problem and is in a good position to do so. The mud of Missouri, though deep, is not absolutely fathomless like that of Illinois, and the material for making and mending roads in the shape of everything created in the way of rock is abundant in Missouri. Let some Missouri county make ten miles of county road, high enough, dry enough, wide enough, good at all seasons, warranted not to slide out, sink down or roll over, and the question is settled. If it is possible to construct ten miles of road that will stand the Missouri climate the year through, then ten thousand miles may be built.—*Mexico Ledger*.

The cry for better country roads continues urgent and is growing in volume in the Southwest. In the March Forum Colonel A. A. Pope gives some good suggestions that promise good results wherever adopted. He promises among other things a Bureau of Roads to each State, whose business it should be to ascertain and supply to communities requiring it, relating to the expense, mechanical construction, care, durability, use and extent of the different kind of roads. In connection with this bureau, he would have some kind of State supervision or advisory assistance by competent engineers in road and bridge building. There is little doubt but that such a state bureau, if properly managed, would be of vast assistance in the economical and efficient expenditure of money in country road building.—*Republic*.

On Tuesday, April 5, the taxpayers and voters will have to elect a road overseer in every road district. None but good and competent men should be elected to fill this important office. We say important because it is one of vital interest to every business man in Wellsville, as well as every farmer in this township. Without good roads the farmers cannot get to town with their produce. Let every farmer turn out on Tuesday, April 5, and select the very best material available for road overseer.—*Wellsville Optician*.

WHAT GOOD ROADS SAVE—ECONOMIES AMOUNTING TO MILLIONS ARE IN REACH OF THE FARMERS.

If our common boast that we are a progressive, wide awake and ingenious nation is well founded, what can be urged to excuse us for adhering to the antiquated and inefficient methods of making and keeping our common roads when we have before us the great economy and splendid results produced by the adoption of more intelligent methods in other countries? In many respects we have greater need of hard-surfaced roads than has either France or England. Our rainfall is considerably heavier than theirs and our dirt roads for weeks at a time are half as deep as they are wide. Farm traffic is suspended and horses are kept in idleness.

Official statistics show that there are something over 16,000,000 horses and mules on the farms of the United States, and at a moderate estimate of twenty-five cents per day as the cost of feed for each animal, we see that it costs the farmers of this country about \$4,000,000 per day for this item alone. Less than 50 per cent. of these animals would be sufficient to do all the hauling of farm produce carried on in this country if even the main roads were put in first-class condition, but, not to hope too strongly for the attainment of distant things, let us suppose that such an improvement be projected as would render unnecessary only one-eighth of the total number of the draft animals now employed. This would reduce the entire number by a little over 2,000,000 and would effect a saving each day of about 14,000 tons of hay and 750,000 bushels of oats, which, reduced to money value, equals \$300,000 per day, or about \$140,000,000 per year.

Add to this the value of the animals, \$140,000,000, and we have a total of \$284,000,000 saved for the first year. Of course these figures do not represent the real loss detailed to our farmers by the use of dirt roads. That loss is beyond computation; but in whatever way the computation is directed, and wherever the loss is susceptible of calculation, the same startling exhibit is bound to appear. A recent careful count shows over 300 abandoned farms in the fertile and populous State of New Jersey.—*Engineer's Magazine*.

DRAIN THE ROADS.

Those who have studied the road question suggest, that where rock or gravel roads cannot be made, that a drain be laid under the center of the roadway, having vents at all the depressions. These can be made with tile, stone or even three or four poles laid in a bunch in the center. Let these be about a foot under the center of the road. The water will be drawn off very rapidly in this way, and the roads never become very muddy. It is the standing of the water in the roads that causes them to become worked up by travel into a deep mire. Roads may be rounded up ever so much. The tracks made by horses and vehicles will hold the water and keep it in the roads to soften it, unless there is under drainage. Where these under drains have been tried, their beneficial effect is said to be wonderful, and it stands to reason that such should be the case. Lands that were worthless on account of being wet and clammy have been made by under drainage the most productive in the country. If a channel for the passage of the water from the roads can be made not over a foot below the surface, all the water would speedily reach it, and the surface be left comparatively hard. The cost of such drainage could not be more than from \$75 to \$200 per mile. We hope it will be tried in this county this year by numerous overseers, that we may see just how beneficial such drainage is.—*Shelby Democrat*.

LEVI CHUBBUCK,
Secretary State Board of Agriculture.